IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Padmanabhan Sreenivasan et al.	Examiner: Ramsey Refai
Serial No.:	09/811,158	Group Art Unit: 3627
Filed:	March 16, 2001	Docket: 499.057US1
Title:	MAINTAINING MEMBERSHIP IN HIGH AVAILABILITY COMPUTING SYSTEMS	

PETITION TO WITHDRAW HOLDING OF ABANDONMENT UNDER 37 CFR 1.181

MS Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

A Notice of Abandonment mailed December 9, 2008 for the above-identified patent application was received by our office. The Notice states that Applicant failed to timely file a proper reply to the Office Action mailed May 14, 2008.

Applicant respectfully disagrees. Applicant filed a Response to the Office Action and a petition for a three-month extension of time on November 14, 2008, with a signed Certificate of Mailing reflecting the same. In return, Applicant received a PTO-stamped postcard acknowledging receipt of the submitted response by the USPTO. Additionally, Applicant notes that the Response to the Office Action mailed on May 14, 2008 is uploaded and available for examination in the USPTO's Patent Application Information Retrieval (PAIR) system.

True and accurate copies of the documents mailed November 14, 2008, along with a copy of the PTO-stamped postcard are enclosed. Therefore, Applicant submits that the response was timely filed and respectfully requests reconsideration of the holding of abandonment.

It is believed that there is no action or omission by Applicant to support a holding that the above-identified application was or is abandoned. Accordingly, it is respectfully requested that the abandonment holding be withdrawn and prosecution resumed as soon as possible.

Conclusion

It is Applicant's understanding that no fee is required for a petition to withdraw a holding of abandonment; *see* MPEP 711.03(c), and therefore no fee is enclosed. However, if a fee is required, please charge it to Deposit Account No. 19-0743.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6954

Date February 9, 2009   By _____
                                        Rodney L Lacy
                                        Reg. No. 41,136

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 9 day of February 2009.

Zhakalazky M. Carrion
_____   _____
Name   Signature

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Receipt is hereby acknowledged for the following in the United States Patent and
Trademark Office:

In re: Patent Application of: Padmanabhan Sreenivasan et al.
Title: MAINTAINING MEMBERSHIP IN HIGH AVAILABILITY COMPUTING
            SYSTEMS
Serial No.: 09/811,158   Filing Date: March 16, 2001

CONTENTS: Amendment and Response (11 pgs.); Petition for Extension of Time (1
pg.); including authorization to charge Deposit Account No. 19-0743 in the amount of
$110.00 to cover the Extension of Time Fee; return postcard and transmittal sheet.

Mailed: November 14th, 2008   Docket No.: 499.0571US1
RLL/   Due Date: November 14, 2008

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Applicant: Padmanabhan Sreenivasan et al.

Title: MAINTAINING MEMBERSHIP IN HIGH AVAILABILITY COMPUTING SYSTEMS

Docket No.:	499.057US1	Serial No.:	09/811,158
Filed:	March 16, 2001	Due Date:	November 14, 2008
Examiner:	Ramsey Refai	Group Art Unit:	3627
Customer No.:	21186	Confirmation No.:	5792

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

We are transmitting herewith the following attached items (as indicated with an "X"):

X   Return Postcard
X   Amendment and Response under 1.111 (11 pg.)
X   Petition for Extension of Time (1 pg.)
X   Authorization to charge Deposit Account 19-0743 in the amount of $1110.00 to cover the Extension of Time Fee.

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.   By: _____
Customer No.: 21186   Rodney L. Lacy
                                               Reg. No. 41,136

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this __14th__ day of November, 2008.

Rodney L. Lacy   _____
_____
Name   Signature

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
                                     (GENERAL)

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Padmanabhan Sreenivasan et al.	Examiner: Ramsey Refai
Serial No.:	09/811,158	Group Art Unit: 3627
Filed:	March 16, 2001	Docket No.: 499.057US1
Customer No.: 21186		Confirmation No.: 5792
Title:	MAINTAINING MEMBERSHIP IN HIGH AVAILABILITY COMPUTING SYSTEMS	

AMENDMENT & RESPONSE UNDER 37 C.F.R. § 1.111

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In response to the Office Action mailed May 14, 2008, please amend the application as follows:

This response is accompanied by a Petition, as well as the appropriate fee, to obtain a three-month extension of the period for responding to the Office action, thereby moving the deadline for response from August 14, 2008 to November 14, 2008.

AMENDMENT AND RESPONSE UNDER 37 C.F.R § 1.111
Serial Number:09/811,158
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IN THE TITLE

Please amend the title as follows:

MAINTAINING PROCESS GROUP MEMBERSHIP FOR NODE CLUSTERS IN HIGH AVAILABILITY COMPUTING SYSTEMS

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Filing Date: March 16, 2001
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IN THE CLAIMS

Please amend the claims as follows:

1.   (Currently Amended) A computing system comprising:

a plurality of nodes connected by a network[[,]];

a cluster membership service operating on the plurality of nodes, the cluster membership service operable to determine membership in a cluster by exchanging messages, wherein a message originating from a node includes a node data area defining the node's view of the cluster relationships and wherein the message includes a checkmark data structure in which each node receiving the message sets the checkmark data structure according to whether the receiving node confirms the relationship defined in the node data area;

wherein the plurality of nodes include a group membership service operable to determine membership in a group of nodes formed by a subset the plurality of nodes in the cluster of a process executing on a node in the plurality of nodes the group of nodes for an application distributed across two or more of the plurality of nodes in the group, said membership communicated between the plurality of two or more nodes in the network group utilizing a proposal message including data defining a plurality of relationships between the plurality of nodes and sent by a coordinator node for receipt by each node in the plurality of nodes group and a commit message sent by the coordinator node to each node in the plurality of nodes group after receiving acknowledgement that the proposal message has reached each node of the plurality of nodes group, and further wherein the plurality of nodes in the group communicate with each other to detect a failure of an application in the group on a first node of the plurality of nodes cluster and to transfer applications from the first node to other nodes of the plurality of nodes in the group on detecting the failure.

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2.　　(Currently Amended)　A method of maintaining high availability in a server cluster having a plurality of nodes, the method comprising:

determining membership by a cluster membership service in a cluster by exchanging messages, wherein a message originating from a node includes a node data area defining the node's view of the cluster relationships and wherein the message includes a checkmark data structure in which each node receiving the message sets the checkmark data structure according to whether the receiving node confirms the relationship defined in the node data area;

instantiating a group communications service, a group membership service and a system resource manager on each node of the plurality of nodes, the plurality of nodes forming a group;

communicating process membership in the group utilizing a proposal message sent by a coordinator node for receipt by each node in the plurality of nodes and a commit message sent by the coordinator node to each node in the plurality of nodes after receiving acknowledgement that the proposal message has reached each node of the plurality of nodes, wherein the proposal message includes data defining one or more relationships between the plurality of nodes;

communicating between the group communications service, the group membership service and the system resource manager on each node of the plurality of nodes group to detect process failures and node failures within the group;

upon detecting a failure in a process on a first node of the plurality of nodes group, transferring applications to other nodes of the plurality of nodes group; and

updating, by the group membership service, process membership in a distributed application upon detecting a process failure on a node of the plurality of nodes group.

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3.   (Currently Amended) A computer-readable medium having instructions stored thereon, wherein the instructions, when executed in a computer, perform a method operations comprising:

determining membership by a cluster membership service in a cluster by exchanging messages, wherein a message originating from a node includes a node data area defining the node's view of the cluster relationships and wherein the message includes a checkmark data structure in which each node receiving the message sets the checkmark data structure according to whether the receiving node confirms the relationship defined in the node data area;

instantiating a group communications service, a group membership service and a system resource manager on each node of a plurality of nodes, the plurality of nodes forming a group;

communicating process membership in [[a]] the group utilizing a proposal message including data defining one or more relationships between the plurality of nodes sent by a coordinator node for receipt by each node in the plurality of nodes and a commit message sent by the coordinator node to each node in the plurality of nodes after receiving acknowledgement that the proposal message has reached each node of the plurality of nodes;

communicating between the group communications service, the group membership service and the system resource manager on each node of the plurality of nodes group to detect process failures and node failures within the group;

upon detecting a failure in a process on a first node of the plurality of nodes group, transferring applications to other nodes of the plurality of nodes group; and

updating, by the group membership service, process membership in a distributed application upon detecting a process failure on a node of the plurality of nodes group.

4.   (Previously Presented) The computing system of claim 1, wherein the plurality of nodes includes an initiator node to send the proposal message to the coordinator node.

5.   (Currently Amended) The computing system of claim 4, wherein the coordinator node comprises a longest running an oldest node in the plurality of nodes.

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6.   (Previously Presented) The computing system of claim 4, wherein the plurality of nodes
are arranged in a network ring, the order of the plurality of nodes in the network ring being
defined by a cluster membership age of each node in the plurality of nodes and wherein the
coordinator node forwards the proposal message to a first node of the plurality of nodes,
and wherein the proposal message is forwarded by a receiving node in the network ring to a
successor node of the receiving node.

7.   (Previously Presented) The computing system of claim 6, wherein the coordinator node
issues the commit message upon receiving the proposal message from a non-initiator node in the
network ring.

8.   (Previously Presented) The method of claim 2, wherein communicating the proposal
message includes sending by an initiator node the proposal message to the coordinator node.

9.   (Currently Amended) The method of claim 8, wherein the coordinator node comprises a
~~longest running~~ an oldest node in the plurality of nodes.

10.   (Previously Presented) The method of claim 8, further comprising:
        arranging the plurality of nodes in a network ring;
        forwarding by the coordinator node the proposal message to a first node of the plurality
of nodes; and
        forwarding by the first node to a next node in the network ring.

11.   (Previously Presented) The method of claim 10, wherein the coordinator node issues the
commit message upon receiving the proposal message from a non-initiator node in the ring.

12.   (Previously Presented) The method of claim 10, wherein upon receiving the commit
message a node of the plurality of nodes in the network ring performs the tasks of:
                caching the commit message;
                forwarding the commit message to a next node in the network ring;

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         upon completing forwarding the commit message delivering the commit message to each process of a process group on the node.

13.   (Previously Presented) The computer readable medium of claim 3, wherein communicating the proposal message includes sending by an initiator node the proposal message to the coordinator node.

14.   (Currently Amended) The computer readable medium of claim 13, wherein the coordinator node comprises a ~~longest running~~ an oldest node in the plurality of nodes.

15.   (Previously Presented) The computer readable medium of claim 13, wherein the method further comprises:

         arranging the plurality of nodes in a network ring;

         forwarding by the coordinator node the proposal message to a first node of the plurality of nodes; and

         forwarding by the first node to a next node in the network ring.

16.   (Previously Presented) The computer readable medium of claim 15, wherein the coordinator node issues the commit message upon receiving the proposal message from a non-initiator node in the ring.

17.   (Previously Presented) The computer readable medium of claim 15, wherein upon receiving the commit message a node of the plurality of nodes in the network ring performs the tasks of:

            caching the commit message;

            forwarding the commit message to a next node in the network ring;

            upon forwarding the commit message delivering the commit message to each process of a process group on the node.

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REMARKS

This responds to the Office Action mailed on May 14, 2008.

Claims 1, 2, 3, 5, 9 and 14 are amended, no claims or added; as a result, claims 1-17 remain pending in this application. Support for the amendments may be found throughout the specification, and at least on pages 12-18 and on pages 22-35 of the specification. Applicant respectfully submits that no new matter has been introduced with the amendments.

§112 Rejection of the Claims

Claims 1-17 were rejected under 35 U.S.C. § 112, first paragraph, as lacking adequate description. In particular, the Office Action asserted that there was lack of support in the specification for claims 1-3 for the recitation that "proposal message including data defining a plurality of relationships between the plurality of nodes". Applicant has amended claims 1-3 such that the cluster membership message includes relationship data. Support for this may be found at least on page 17-18 of the specification.

Additionally, the Office Action stated that the specification lacked support for the recitation in claims 5, 9 and 14 of a "longest running node." Applicant as amended claims 5, 9 and 14 to recite an "oldest node".

In view of the amendments, Applicant respectfully submits that claims 1-17 are fully supported in the specification and respectfully requests reconsideration and the withdrawal of the rejection of claims 1-17 under 35 U.S.C. § 112, first paragraph.

§103 Rejection of the Claims

Claims 1-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Frank et al. (U.S. 6,532,494). The determination of obviousness under 35 U.S.C. § 103 is a legal conclusion based on factual evidence. See Princeton Biochemicals, Inc. v. Beckman Coulter, Inc., 411 F.3d 1332, 1336-37 (Fed.Cir. 2005). The legal conclusion that a claim is obvious within § 103(a) depends on at least four underlying factual issues set forth in Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966). The underlying factual

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issues set forth in *Graham* are as follows: (1) the scope and content of the prior art; (2) differences between the prior art and the claims at issue; (3) the level of ordinary skill in the pertinent art; and (4) evaluation of any relevant secondary considerations.

The Examiner has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir.1988). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested, by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) ; M.P.E.P. § 2143.03. "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970) ; M.P.E.P. § 2143.03. As part of establishing a *prima facie* case of obviousness, the Examiner's analysis must show that some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead an individual to combine the relevant teaching of the references. *Id.* To facilitate review, this analysis should be made explicit. *KSR Int'l v. Teleflex Inc., et al.*, 127 S.Ct. 1727; 167 L.Ed 2d 705; 82 USPQ2d 1385 (2007) (citing *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006)). Applicant respectfully submits that claims 1-17 are not obvious in view of Frank because there are differences between the claims and Frank.

For example, claim 1 as amended recites a cluster membership service and a group membership service, where the cluster membership service determines membership in the cluster for a plurality of nodes, and further wherein the group membership service determines membership of a process for a distributed application in a group of nodes that are a subset of the nodes in the cluster. Claims 2 and 3 also recite a group membership service and a cluster membership service. Applicant respectfully submit that Frank does not disclose both a cluster membership service and a group membership service. Frank appears to disclose maintaining membership in a cluster. Thus Applicant's claims have an advantage over the system disclosed in Frank. Frank appears to limit process migration to situations where a node in the cluster has failed (see e.g., column 2, lines 5-13), where all applications are failed-over to another node. In Applicants recited claims, failure of a process in a group, not just node failure, can cause a process to failover to another node in a group defined for the cluster. Thus Applicant's recited

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claims provide advantages in that more fine-tuning at the process level is available in Applicant's claimed invention.

Further, claim 1 as amended recites that the cluster membership service is "operable to determine membership in a cluster by exchanging messages, wherein a message originating from a node includes a node data area defining the node's view of the cluster relationships and wherein the message includes a checkmark data structure in which each node receiving the message sets the checkmark data structure according to whether the receiving node confirms the relationship defined in the node data area." Claims 2 and 3 recite similar subject matter. Frank does not disclose exchanging messages to define each node's view of the cluster, and further Frank does not disclose using a checkmark data structure to determine whether a receiving node confirms the view of the relationship in messages received from other nodes.

In view of the above, claims 1-3 recite multiple elements not found in Frank. As a result, there are significant differences between Frank and claims 1-3. Therefore claims 1-3 are not obvious in view of Frank. Applicant respectfully requests reconsideration and the withdrawal of the rejection of claims 1-3.

Claims 4-7 depend either directly or indirectly from claim 1. Claims 8-12 depend either directly or indirectly from claim 2. Claims 13-17 depend either directly or indirectly from claim 3. Each of these dependent claims inherits the elements of their respective base claims, in addition to providing patentable distinctions. Therefore each of these dependent claims is allowable for at least the reasons discussed above regarding their respective base claims.. Applicant respectfully requests reconsideration and the withdrawal of the rejection of claims 4-17.

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CONCLUSION

Applicants respectfully submit that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicants' representative at (612) 373-6954 to facilitate prosecution of this application.
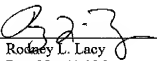
If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6954

Date   November 14, 2008   By _____
                                     Rodney L. Lacy
                                     Reg. No. 41,136

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Padmanabhan Sreenivasan et al.	Examiner: Ramsey Refai
Serial No.:	09/811,158	Group Art Unit: 3627
Filed:	March 16, 2001	Docket: 499.057US1
Customer No.: 21186		Confirmation No.: 5792
Title:	MAINTAINING MEMBERSHIP IN HIGH AVAILABILITY COMPUTING SYSTEMS	

PETITION FOR A THREE-MONTH EXTENSION OF TIME

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In accordance with the provision of 37 C.F.R § 1.136(a), it is respectfully requested that a three-month extension of time be granted in which to respond to the Non Final Office Action mailed May 14, 2008, said period of response being extended from August 14, 2008 to November 14, 2008.
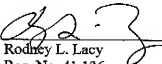
Please charge Deposit Account No. 19-0743 in the amount of $1,110.00 to cover the required extension fee. Please charge any additional fees or credit overpayment to deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
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Minneapolis, MN 55402
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Date November 14, 2008   By _____
                                         Rodney L. Lacy
                                         Reg. No. 41,136

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Rodney L. Lacy
_____   _____
Name   Signature

Receipt is hereby acknowledged for the following in the United States Patent and Trademark Office:

In re Patent Application of: Padmanabhan Sreenivasan et al.
Title: MAINTAINING MEMBERSHIP IN HIGH AVAILABILITY COMPUTING
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Serial No.: 09/811,158   Filing Date: March 16, 2001

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Mailed: November 14th, 2008   Docket No.: 499.057US1
RLL/   Due Date: November 14, 2008

DEC 0 1 2008